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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,746	12/10/2003	Robin Lynn Callender	MS304254.1/MSFTP500US	6531
27195 7590 08/22/2007 AMIN. TUROCY & CALVIN, LLP 24TH FLOOR, NATIONAL CITY CENTER 1900 EAST NINTH STREET CLEVELAND, OH 44114			EXAMINER VERDI, KIMBLEANN C	
			ART UNIT 2194	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/732,746	Applicant(s) CALLENDER, ROBIN LYNN	
	Examiner KimbleAnn Verdi	Art Unit 2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on December 10, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 10, 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date April 14, 2004.

**WILLIAM THOMSON**  
**SUPERVISORY PATENT EXAMINER**  
Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This office action is in response to the Application filed on December 10, 2003. Claims 1-30 are pending in the current application.

#### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 760, Figure 7. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use

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thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Abstract discusses purported merits and speculative applications of the invention and does not provide a concise statement of the technical disclosure.

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Line 1 the recitation of "are disclosed herein" and line 11, the recitation of "provided herein" contain implied phrasing.

4. The disclosure is objected to because of the following informalities: page 16, line 13, the recitation of "4124" should be "1224". Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 26 and 30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

With respect to claims 26 and 30, the "computer readable medium," in accordance with Applicant's specification, may be signal carrier. This subject matter is not limited to that which falls within a statutory category of invention because it is not limited to a process, machine, manufacture, or a composition of matter. Instead, it includes a form of energy. Energy does not fall within a statutory category since it is clearly not a series of steps or acts to constitute a process, not a mechanical device or combination of mechanical devices to constitute a machine, not a tangible physical article or object which is some form of matter to be a product and constitute a manufacture, and not a composition of two or more substances to constitute a composition of matter.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9, 19-20, 22, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Application Publication 2001/0044904 A1 to Berg et al. (hereinafter Berg) in view of United States Patent 5,390,301 to Scherf.

9. As to claim 1, Berg teaches the invention substantially as claimed including a system for kernel-mode shimming comprising:

a plurality of driver components (Protected Drivers 31, Fig. 1A, paragraph [0023]); and

a common shim component that provides added functionality to the plurality of driver components (68, Fig. 1A, paragraph [0028]).

Berg does not explicitly disclose a context component associated with each driver component that retrieves and maintains driver context information.

However Scherf teaches a context component (e.g. Data Structure Entry 750A, Fig. 7) associated with each driver component that retrieves and maintains driver context information (col. 3, lines 66-68 and col. 4, lines 1-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the rule table of Berg with the teachings of a data structure from Scherf because this feature would have provided a standardized method of communication between a device driver and a system kernel (col. 2, lines 47-49 of Scherf).

10. As to claim 2, Berg as modified teaches the system of claim 1, wherein driver context information includes a driver's linkage configuration (col. 5, lines 15-19 of Scherf).

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11. As to claim 3, Berg as modified teaches the system of claim 2, wherein the context component (e.g. Data Structure Entry 750A, Fig. 7 of Scherf) comprises a hook component that retrieves an address associated with a kernel- mode service from a driver component's import address table (col. 5, lines 15-19 of Scherf).

12. As to claim 4, Berg as modified teaches the system of claim 3, wherein the hook component determines the address of the context component (e.g. inserts pointer into hash function table, col. 5, lines 15-19 of Scherf).

13. As to claim 5, Berg as modified teaches the system of claim 4, the context component further comprising a thunk component that replaces at least one address associated with a kernel-mode service in the driver's import address table with the address of the context component so as to redirect the flow of execution from the kernel-mode service to the context component (col. 5, lines 19-21 of Scherf) (paragraph [0140] of Berg).

14. As to claim 6, Berg as modified teaches the system of claim 5, wherein the thunk component links the context component to the shim component (col. 5, lines 44-52 of Scherf) (paragraph [0152] of Berg).

15. As to claim 7, Berg as modified teaches the system of claim 6, wherein the thunk component provides the shim component with context information regarding the kernel-mode service replaced by the context component (col. 5, lines 49-52 of Scherf) (paragraph [0152] of Berg).

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16. As to claim 8, Berg teaches the system of claim 7, wherein shim component provides a link to the kernel-mode service to direct the flow of execution from the shim component to the service (paragraph [0152]).

17. As to claim 9, Berg teaches the system of claim 1, wherein the added functionality provided by the shim component includes compensating for a driver fault (e.g. replaced driver function, paragraph [0154]).

18. As to claim 19, this claim is rejected for the same reasons as claim 1, see the rejection to claim 1 above.

19. As to claim 20, Berg as modified teaches the system of claim 19, wherein the context data includes information regarding a kernel-mode procedure utilized by the driver (col. 5, lines 15-19 of Scherf).

20. As to claim 22, Berg as modified teaches the method of claim 19, wherein the caller is a driver (e.g. data structure filled by driver, col. 4, lines 1-5 of Scherf).

21. As to claim 24, Berg as modified teaches the method of claim 20, wherein providing context data to the shim component includes loading the data into memory (Data Structure 748, Fig. 7 of Scherf).

22. As to claim 25, Berg as modified teaches the method of claim 20, further comprising storing the shim component and context data in a shim database in a manner that preserves the association between a shim component (e.g. pointer in Hash Function Table, 712, Fig. 7 of Scherf), context data (e.g. Data Structure Entry, 750A, Fig. 7 of Scherf), and a driver (col. 5, lines 9-52 of Scherf).



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23. As to claim 26, this claim is rejected for the same reasons as claim 20, see the rejection to claim 20 above.

24. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Application Publication 2001/0044904 A1 to Berg et al. (hereinafter Berg) in view of United States Patent 5,390,301 to Scherf as applied to claim 1 above, and further in view of "Exploiting Software Interfaces for Performance Measurement" by Konkin et al. (hereinafter Konkin).

25. As to claim 10, Berg as modified by Scherf does not teach wherein the added functionality provided by the shim component includes providing diagnostic testing.

However Konkin teaches wherein the added functionality provided by the shim component includes providing diagnostic testing (e.g. measure network latency, page 216, left col., lines 41-50).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have further modified the shim of Berg as modified by Scherf with the teachings of a measurement shim from Konkin because this feature would have further provided a mechanism to capture performance metrics of interest to the performance analyst, without disrupting the flow of control or data between the modules on either side of the interface (page 209, left col., lines 12-15 of Konkin).

26. Claims 11-13, 21, 23, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,390,301 to Scherf in view of United States Patent Application Publication 2001/0044904 A1 to Berg et al. (hereinafter Berg).

27. As to claim 11, Scherf teaches the invention substantially as claimed including a system for shimming kernel-mode drivers comprising:

a shim database that stores shim components (e.g. Hash Function Tables 712, Fig. 7), identify drivers to be shimmed (col. 3, lines 67-68 and col. 4, lines 1-13), and associates one or more shim components with drivers to be shimmed (step 304, Fig. 3); and

a shim engine component (e.g. kernel) that receives a notification signal from the driver loader component (step 401, Fig. 4, col. 5, lines 39-44), queries the shim database (e.g. Hash Function Tables 712, Fig. 7) to determine if the particular loaded driver needs to be shimmed (steps 401-405, Fig. 4), and loads shim components associated with the driver (step 406 and 407, Fig. 4).

Scherf does not explicitly disclose a driver loader component that loads drivers and generates a notification signal to indicate that a particular driver has been loaded.

However Berg discloses a driver loader component (e.g. NT I/O Manager) that loads drivers and generates a notification signal to indicate that a particular driver has been loaded (paragraph [0127]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the hash function table of Scherf with the teachings of a shim from Berg because this feature would have provided a mechanism to suborn operating system control paths between user space 24 and kernel space 26, (Fig. 2, paragraph [0038] of Berg).

28. As to claim 12, Scherf as modified teaches the system of claim 11, wherein the shim engine is kernel-mode service (paragraph [0152] of Berg).

29. As to claim 13, Scherf as modified teaches the system of claim 11, wherein the shim engine generates a context component associated with a particular loaded driver the context component comprising:

a data structure identifying a kernel-mode procedure utilized by the driver (col. 5, lines 15-19 of Scherf); and

a thunk component for linking the driver to the context component (col. 5, lines 19-21 of Scherf) and the context component to a shim component (paragraph [0140] of Berg).

30. As to claim 21, Scherf teaches the invention substantially as claimed including a method for shimming a kernel-mode driver comprising:

generating driver unique context data associated with each driver to be shimmed (col. 3, lines 66-68 and col. 4, lines 1-13);

providing the driver unique context data to the shim component (e.g. kernel) such that the shim component (e.g. kernel) can determine its caller (e.g. access data structure) in an overall driver linkage configuration (col. 5, lines 44-52).

Scherf does not explicitly teach generating a shim component common to several drivers.

However Berg teaches generating a shim component common to several drivers (Shim 68, Fig. 1A, paragraph [0028]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the hash function table of Scherf with the teachings of a shim from Berg because this feature would have provided a mechanism to suborn operating system control paths between user space 24 and kernel space 26, (Fig. 2, paragraph [0038] of Berg).

31. As to claim 23, Scherf teaches the method of claim 21, wherein providing context data to the shim component includes passing the context data via a procedure or method parameter (step 407, Fig. 4).

32. As to claim 27, Scherf teaches the invention substantially as claimed including a method for modifying kernel-mode drivers calls comprising:

querying a shim database (e.g. Hash function Table, 712, Fig. 7) to determine if the loaded driver has shim components associated therewith (steps 407-405, Fig. 4);

initializing a unique context for the driver (col. 3, lines 66-68 and col. 4, lines 1-13); and

redirecting the driver to the shim component (col. 5, lines 19-21), wherein the unique context identifies the driver to the shim component (col. 5, lines 44-52) .

Scherf does not explicitly disclose receiving a signal indicating that a driver has been loaded; and

loading any shim components associated with the driver.

However Berg teaches receiving a signal indicating that a driver has been loaded (paragraph [0127]); and

loading any shim components associated with the driver (Shim 68, Fig. 1A, paragraphs [0028] and [0038]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the hash function table of Scherf with the teachings of a shim from Berg because this feature would have provided a mechanism to suborn operating system control paths between user space 24 and kernel space 26, (Fig. 2, paragraph [0038] of Berg).

33. As to claim 28, Scherf as modified teaches the method of claim 27, wherein redirecting the driver to the shim component comprises replacing a driver import address table entry specifying a kernel-mode procedure to be imported with a pointer to the shim component (col. 5, lines 19-21 of Scherf) (paragraph [0140] of Berg).

34. As to claim 29, Scherf as modified teaches the method of claim 28, further comprising calling the kernel-mode procedure replaced by the pointer to the shim component from the shim component (paragraph [0152] of Berg).

35. As to claim 30, this claim is rejected for the same reasons as claim 27, see the rejection to claim 27 above.

36. Claims 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,390,301 to Scherf in view of United States Patent Application Publication 2001/0044904 A1 to Berg et al. (hereinafter Berg) as applied to claim 11 above, and further in view of "Exploiting Software Interfaces for Performance Measurement" by Konkin et al. (hereinafter Konkin).

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37. As to claim 14, Scherf as modified by does not teach a diagnostic component for determining the cause of a system problem, instability or inefficiency and initiating corrective action.

However Konkin teaches a diagnostic component for determining the cause of a system problem, instability or inefficiency and initiating corrective action (e.g. measure network latency, page 216, left col., lines 41-50).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have further modified the shim of Berg as modified by Scherf with the teachings of a measurement shim from Konkin because this feature would have further provided a mechanism to capture performance metrics of interest to the performance analyst, without disrupting the flow of control or data between the modules on either side of the interface (page 209, left col., lines 12-15 of Konkin)

38. As to claim 15, Scherf as modified by Berg teaches the system of claim 14, wherein the corrective action includes locating and applying one or more shim components stored in the shim database to a driver (e.g. reconfiguring device driver, paragraph [0118] of Berg).

39. As to claim 16, Scherf as modified by Berg teaches the system of claim 14, wherein the corrective action includes notifying a user (e.g. notification sent to event log, paragraph [0118] of Berg).

40. As to claim 17, Scherf as modified by Berg teaches the system of claim 14, further comprising an interface component (e.g. Administrative Toolset, 30, Fig. 1B of

Berg) to facilitate development and deployment of a remedial shim component (paragraph [0040] of Berg).

41. As to claim 18, Scherf as modified by Berg teaches the system of claim 17, wherein the interface component (e.g. Administrative Toolset, 30, Fig. 1B of Berg) includes a shim wizard that navigates a user through a series of steps to develop a shim component or apply a previously developed shim component to a driver (paragraphs [0037] and [0039]-[0040] of Berg).

### ***Conclusion***

42. The prior art made of record on the accompanying PTO-892 and not relied upon, is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KimbleAnn Verdi whose telephone number is (571) 270-1654. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on (571) 272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KV

August 20, 2007



WILLIAM THOMSON  
SUPERVISORY PATENT EXAMINER